



Complete Summary

TITLE

Carotid endarterectomy (CEA): mortality rate.

SOURCE(S)

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [revision 3]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Jul 21. 172 p.(AHRQ Pub; no. 02-R0204).

Brief Abstract

DESCRIPTION

This measure assesses the number of deaths per 100 carotid endarterectomies (CEAs).

This CEA mortality measure is not recommended as a stand-alone measure, but is suggested as a companion measure to the corresponding CEA volume measure. (See the related National Quality Measures Clearinghouse (NQMC) summary of the Agency for Healthcare Research and Quality (AHRQ) Inpatient Quality Indicator [Carotid endarterectomy \(CEA\): volume.](#))

RATIONALE

Carotid endarterectomy (CEA) is a fairly common procedure that requires proficiency with the use of complex equipment; and technical errors may lead to clinically significant complications, such as abrupt carotid occlusion with or without stroke, myocardial infarction, and death. Better processes of care may reduce short-term mortality, which represents better quality.

PRIMARY CLINICAL COMPONENT

Carotid endarterectomy; mortality

DENOMINATOR DESCRIPTION

Discharges with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes* of 3812 in any procedure field. Exclude patients with missing discharge disposition, transferring to another short-term hospital, Major Diagnostic Category (MDC) 14 (pregnancy, childbirth, and puerperium), and MDC 15 (newborns and other neonates).

*Refer to Appendix A of the original measure documentation for details.

NUMERATOR DESCRIPTION

Number of deaths with a code* of carotid endarterectomy (CEA) in any procedure field

*Refer to Appendix A of the original measure documentation for details.

Evidence Supporting the Measure

PRIMARY MEASURE DOMAIN

Outcome

SECONDARY MEASURE DOMAIN

Not applicable

EVIDENCE SUPPORTING THE MEASURE

A clinical practice guideline or other peer-reviewed synthesis of the clinical evidence
One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Evidence Supporting Need for the Measure

NEED FOR THE MEASURE

Wide variation in quality for the performance measured

EVIDENCE SUPPORTING NEED FOR THE MEASURE

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [revision 3]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Jul 21. 172 p.(AHRQ Pub; no. 02-R0204).

State of Use of the Measure

STATE OF USE

Current routine use

CURRENT USE

Internal quality improvement
Quality of care research

Application of Measure in its Current Use

CARE SETTING

Hospitals

PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Physicians

LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Single Health Care Delivery Organizations

TARGET POPULATION AGE

All age groups, excluding newborns and other neonates

TARGET POPULATION GENDER

Either male or female

STRATIFICATION BY VULNERABLE POPULATIONS

Unspecified

Characteristics of the Primary Clinical Component

INCIDENCE/PREVALENCE

Approximately 144,000 carotid endarterectomies (CEAs) were performed in the United States in 1997.

EVIDENCE FOR INCIDENCE/PREVALENCE

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [revision 3]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Jul 21. 172 p. (AHRQ Pub; no. 02-R0204).

ASSOCIATION WITH VULNERABLE POPULATIONS

Unspecified

BURDEN OF ILLNESS

Unspecified

UTILIZATION

Unspecified

COSTS

Unspecified

Institute of Medicine National Healthcare Quality Report Categories

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

Data Collection for the Measure

CASE FINDING

Users of care only

DESCRIPTION OF CASE FINDING

Patients discharged from the hospital who had carotid endarterectomy (CEA) (see the "Denominator Inclusions/Exclusions" field)

DENOMINATOR SAMPLING FRAME

Patients associated with provider

DENOMINATOR (INDEX) EVENT

Institutionalization
Therapeutic Intervention

DENOMINATOR INCLUSIONS/EXCLUSIONS

Inclusions

Discharges with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes* of 3812 in any procedure field.

*Refer to Appendix A of the original measure documentation for details.

Exclusions

Exclude patients with missing discharge disposition, transferring to another short-term hospital, Major Diagnostic Category (MDC) 14 (pregnancy, childbirth, and puerperium), and MDC 15 (newborns and other neonates).

NUMERATOR INCLUSIONS/EXCLUSIONS

Inclusions

Number of deaths with a code* of carotid endarterectomy (CEA) in any procedure field

*Refer to Appendix A of the original measure documentation for details.

Exclusions

Unspecified

DENOMINATOR TIME WINDOW

Time window is a single point in time

NUMERATOR TIME WINDOW

Institutionalization

DATA SOURCE

Administrative data

LEVEL OF DETERMINATION OF QUALITY

Not Individual Case

OUTCOME TYPE

Clinical Outcome

PRE-EXISTING INSTRUMENT USED

Unspecified

Computation of the Measure

SCORING

Rate

INTERPRETATION OF SCORE

Better quality is associated with a lower score

ALLOWANCE FOR PATIENT FACTORS

Analysis by subgroup (stratification on patient factors)
Case-mix adjustment
Risk adjustment method widely or commercially available

DESCRIPTION OF ALLOWANCE FOR PATIENT FACTORS

Observed (raw) rates may be stratified by hospitals, age groups, race/ethnicity categories, sex, and payer categories.

Risk adjustment of the data is recommended using, at minimum, age, sex, and 3M™ All-Patient Refined Diagnosis-Related Groups (APR-DRGs)*.

Application of multivariate signal extraction (MSX) to smooth risk adjusted rates is also recommended.

Note: Information on the 3M™ APR-DRG system is available at
http://www.3m.com/us/healthcare/his/products/coding/refined_drq.jhtml.

STANDARD OF COMPARISON

External comparison at a point in time
External comparison of time trends
Internal time comparison

Evaluation of Measure Properties

EXTENT OF MEASURE TESTING

Each potential quality indicator was evaluated against the following six criteria, which were considered essential for determining the reliability and validity of a quality indicator: face validity, precision, minimum bias, construct validity, fosters real quality improvement, and application. The project team searched Medline for articles relating to each of these six areas of evaluation. Additionally, extensive empirical testing of all potential indicators was conducted using the 1995-97 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) and Nationwide Inpatient Sample (NIS) to determine precision, bias, and construct validity. Table 2 in the original measure documentation summarizes the results of the literature review and empirical evaluations on the Inpatient Quality Indicators. Refer to the original measure documentation for details.

EVIDENCE FOR RELIABILITY/VALIDITY TESTING

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [revision 3]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Jul 21. 172 p. (AHRQ Pub; no. 02-R0204).

Identifying Information

ORIGINAL TITLE

Carotid endarterectomy (CEA) mortality rate (IQI 31).

MEASURE COLLECTION

[Agency for Healthcare Research and Quality \(AHRQ\) Quality Indicators](#)

MEASURE SET NAME

[Agency for Healthcare Research and Quality \(AHRQ\) Inpatient Quality Indicators](#)

DEVELOPER

Agency for Healthcare Research and Quality

ADAPTATION

Measure was not adapted from another source.

RELEASE DATE

2004 Jul

MEASURE STATUS

Please note: This measure has been updated. The National Quality Measures Clearinghouse is working to update this summary.

SOURCE(S)

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [revision 3]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Jul 21. 172 p.(AHRQ Pub; no. 02-R0204).

MEASURE AVAILABILITY

The individual measure, "Carotid endarterectomy (CEA) mortality rate (IQI 31)," is published in "AHRQ Quality Indicators. Guide to Inpatient Quality Indicators: Quality of Care in Hospitals -- Volume, Mortality, and Utilization." An update of this document is available in [Portable Document Format \(PDF\)](#) and a [zipped WordPerfect\(R\) file](#) from the Agency for Healthcare Research and Quality (AHRQ) Web site.

For more information, please contact the QI Support Team at support@qualityindicators.ahrq.gov.

COMPANION DOCUMENTS

The following are available:

- "AHRQ Inpatient Quality Indicators Software (Version 2.1 Revision 3)" (Rockville, [MD]: AHRQ, 2004 Jul 21) and its accompanying documentation can be downloaded from the [Agency for Healthcare Research and Quality \(AHRQ\) Web site](#). (The software is available in SPSS- and SAS-compatible formats.)
- Guidance for using the AHRQ quality indicators for hospital-level public reporting or payment. Rockville (MD): Agency for Healthcare Research and Quality; 2004 Aug. 24 p. This document is available from the [AHRQ Web site](#).
- "AHRQ Inpatient Quality Indicators - Interpretative Guide" (Irving [TX]: Dallas-Fort Worth Hospital Council Data Initiative; 2002 Aug 1. 9 p.) is available. This guide helps you to understand and interpret the results derived from the application of the Inpatient Quality Indicators software to your own data and is available from the [AHRQ Web site](#).
- "Refinement of the HCUP Quality Indicators" (Rockville [MD]: AHRQ, 2001 May. Various pagings. [Technical review; no. 4]; AHRQ Publication No. 01-0035) is available. This document was prepared by the UCSF-Stanford Evidence-based Practice Center for AHRQ and can be downloaded from the [AHRQ Web site](#).

NQMC STATUS

This NQMC summary was completed by ECRI on August 19, 2004. The information was verified by the measure developer on October 13, 2004.

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